The numbers may perhaps indicate a slight effect, but nothing like what I expected. My conductivity tests of the sea-water brought back by Mr. King from Hudson's Strait in 1910 gave a value of 0·0480 at 25° C. Correcting for temperature this observation serves to connect the sea-water entering the Strait of Belle Isle with that in Hudson's Strait. Eastward from Belle Isle Strait the conductivity rises rapidly for 180 miles, after which it becomes uniform up to 450 miles. The greatest arctic current sweeps down close to the Labrador shore, and in through the Strait of Belle Isle, where the resultant flow is westward. The following measurements of the conductivity through the ice track by the Belle Isle route were obtained last October on the *Empress of Britain*. The values were all measured at a uniform temperature of 25° C.

Abeam of Belle Isle	0·04865
Forty miles east of Belle Isle	0·04986
Eighty miles east of Belle Isle	0·05047
One hundred and sixty miles	0·05150
Two hundred miles	0·05235
Two hundred and sixty miles	0·05257
Four hundred miles	0·05211
Four hundred and fifty	0·05257

It is evident that the great arctic current is of a lower order of salinity, and that its course may be traced along our eastern coast.

In the early spring when the water is cold the Newfoundland fishermen will find the cod in the vicinity of the icebergs, and will always obtain their catch there. Perhaps this is an indication of the warming influence of the bergs, for the cod will not live in very cold water.

Next summer I shall continue my observations more particularly with reference to the influence of land on the temperature of the sea. I hope before long to be able to publish here some typical microthermograms showing this effect. H. T. BARNES.

McGill University, January 27.

Atmospheric Potential.

UNDER the above heading Mr. Evan McLennan refers in NATURE, February 13, p. 647, to supposed puzzles in atmospheric electricity. That certain difficulties exist no one can deny, but Mr. McLennan's difficulties might, I think, be removed by consultation of existing text-books. The vertical current which he thinks should exist in the atmosphere does exist, and methods of measuring it with more or less accuracy have been in operation for some years. Mr. C. T. R. Wilson devised an apparatus for its direct measurement, and his experiments, made in good weather near ground level, gave a mean value of about 2×10^{-16} amperes per sq. cm. A mean value of the same order, but slightly larger, has been deduced at Potsdam from continuous observations of the electric conductivity of the atmosphere and the potential gradient. To get an electrical current through a vertical conductor it is necessary to bring its upper end to the potential of the surrounding atmosphere. "St. Elmo's fire" is a well-known natural phenomenon. Currents can be obtained through a wire attached to a kite, but the experiment at times may be dangerous. Mr. McLennan seems to suppose that the potential in the free atmosphere increases uniformly with the height. Observations, however, have shown that the normal rate of increase of potential per unit of height diminishes as the height increases and becomes small at the height of a few kilometres. A mountain, it should be remembered, is part of the earth, and shares its potential; if steep it has a large effect on the shape of the equipotential surfaces in adjacent space. Dr. Simpson, in the letter referred to by Mr. McLennan, mentions the real poser, viz. why in spite of the vertical current the earth retains its negative charge in fine weather. C. CHREE.

The Ascent of the Italian Balloon "Albatross," August 12, 1909.

IN NATURE of August 19, 1909, a note appeared stating that in an ascent from Turin the Italian balloon *Albatross*, manned by Lieut. Mina and Signor Piacenza, had reached a height of 38,715 ft., which is greater by about 3000 ft. than any authenticated record for a manned balloon ascent. A communication has recently been received from Prof. Palazzo, director of the Italian Meteorological Office, in which he states that the aëronauts Mina and Piacenza were not provided with the necessary instruments for measuring the height which they reached, and that M. Mina, in the *Rivista Tecnica d'Aeronautica* of 1910, modified his earlier estimate and sought to prove that the balloon had reached a height of 9240 m. (30,300 ft.). Owing to the absence of a proper record of pressure and temperature, however, even that value is uncertain. W. N. SHAW.

Meteorological Office, South Kensington,
London, S.W., February 12.

Induced Cell-reproduction in the Protozoa.

THE discovery of the fact that the products of cell death can cause cell-division in lymphocytes and other cells of the human body has given rise to a strong suspicion that these substances may be necessary for any form of cell-reproduction to occur. It has been already demonstrated by Fantham and Ross that *Amoeba coli* can be caused to divide through many generations by means of auxetics, and Drs. Ross and Cropper have shown that induced cell-reproduction will occur in the ova of *Ascaris megalocephala* if the eggs are mixed with a solution containing auxetics and incubated. It is important, therefore, for confirmation to come from other sources. Some time ago I was fortunate enough to discover a new variety of Polytoma, differing considerably from *P. uvella* in many respects, but chiefly in the fact that the new variety formed spores in the late autumn, which did not develop until the following spring. A full account of the new organism is in course of preparation for publication.

These winter resting spores seemed to me to be extremely suitable objects for testing the action of auxetics. Some preliminary experiments were accordingly made to see whether increase of temperature would cause development. Spores were placed under suitable conditions in the incubator, and kept at a temperature of 25° C. for periods varying from one to three weeks. On careful examination it was found, however, that no change had taken place.

A solution was then prepared containing 2 c.c. of a 4 per cent. solution of theobromine, 0·4 c.c. of a 5 per cent. solution of sodium bicarbonate, and 0·5 c.c. of a 1 per cent. solution of atropine sulphate, and the mixture diluted to 10 c.c. with water. Water containing large quantities of the spores was then mixed with an equal volume of this solution, and the mixture was incubated at 25° C. On examination at the end of forty-eight hours about 5 per cent. of the spores were found to show indications of division, while controls containing no auxetics showed no change. I then worked with a concentrated extract of sheep's suprarenal gland, augmented by the addition of 0·5 c.c. of a 1 per cent. solution of cadaverine

© 1913 Nature Publishing Group

to 10 c.c. of the extract. Incubation of spores with this mixture gave unmistakable evidence of division at the end of eight hours, and in forty-eight hours the products had separated, and were lying free within the sac wall. At a later period they acquired flagella, and several sacs discharged their contents, which appeared quite normal in all respects.

The fact that auxetics will cause the full development of these spores is important, and raises the question as to whether their presence may not be necessary under natural conditions, as it seems fairly evident that pond-water must contain auxetics, derived from the organic matter present, and it is quite possible that it may also contain augmentors in the shape of some of the alkaloids of putrefaction. Much work, however, remains to be done in this direction before the question can be regarded as definitely settled. From the available evidence, however, it seems to be clearly demonstrated that the products of cytolysis do cause cell-reproduction, and, that being so, it is very probable that it is absolutely necessary for a cell to absorb these auxetics before any reproduction is possible. AUBREY H. DREW.

69 Ewhurst Road, Crofton Park, S.E.

The Lion in Sinhalese Art.

IN the notice of the new "Guide to the Collections of the Colombo Museum," which appeared in NATURE of January 9 (p. 523), the point was raised as to the source of the concept of the lion which occurs so frequently in Sinhalese art.

The lion has never been native of Ceylon, and the association of the symbol with the Sinhalese race may be traced back so far as B.C. 543, when a band of adventurers from northern India, led by Wijayo, landed in Ceylon. According to the *Mahawansa*, Wijayo's father was the offspring of a lion, and was called Sihabahu, or Sinhabahu (lit. "lion arm"). This legend is based upon the fact that the grandfather of Wijayo was probably an outlaw named Siha or Sinha ("lion"). Hence the name Sihala or Sinhala was given to Wijayo's kingdom, and the newly established race became known as the Sinhalese. In this way the lion became the national emblem, and, together with the sun, is depicted on the royal banner. Nevertheless, there is no Sinhalese heraldry, as the term is understood in Europe.

The lion was regarded as a symbol of royalty by the Sinhalese, hence the word *sinhăsena* (lit. "lion seat") was applied to the throne. In the Colombo Museum there is a stone lion standing about 5 ft. high, upon which was placed the throne of the kings when the seat of Government was at Polonnaruwa.

A monograph on the Sinhalese banners is shortly to be issued from the Colombo Museum, when the significance of the lion will be fully discussed.

JOSEPH PEARSON.

Colombo Museum, Ceylon, January 30.

THE BRITISH ANTARCTIC EXPEDITION.

(1) TRIBUTE TO THE DEAD EXPLORERS.

FULLER information and reflection on the disaster which overtook Captain R. F. Scott and his four companions in the Antarctic have served to intensify the national senses of bereavement at their end and of pride at the manner in which it was encountered, and both senses have been given full expression. St. Paul's Cathedral was filled, and might have been filled again, on Friday last, when a memorial service was held. The King was present, and there also attended Queen Alexandra, the Prime Minister, and other members of the Government, representatives of the Opposition, of foreign Powers, of the Royal Geographical Society, of the Royal Society, and of many other bodies and institutions which were directly interested in the expedition, or with which its lost members were associated. Memorial services have also taken place at Portsmouth and Devonport dockyards and elsewhere. Expressions of regret have been received from many Colonial and foreign Governments and societies, and tributes of deep sympathy and appreciation have been paid to the memory of the dead by other workers in the polar fields—Dr. Nansen, Admiral Peary, Captain Amundsen, Dr. Charcot, Sir E. H. Shackleton, and others.

Prompt steps have been taken to fulfil the last wish of Scott, that those dependent on his companions and himself should not be allowed to want. On the part of the Government, it is stated that Captain Scott and Petty Officer Evans will be regarded as having lost their lives in action, and the pension due to their widows will consequently be enhanced. Further assistance, covering the necessities of the dependants of the other lost travellers, may be expected to be forthcoming from the public funds. The committee of the Antarctic Exploration Fund, of which Sir Edgar Speyer is chairman, is taking measures to the same end, and is also concerned to clear off the very heavy debt remaining upon the expedition, towards which Scott himself had pledged personal property, and which includes the recoupment of some of the survivors who have forgone part of the payment due to them. The question of the proper publication of the scientific results of the expedition is also involved. If the expedition had ended in success unshadowed by disaster, and if the leader had himself returned, means would have been open, which now are closed, for the discharge of these liabilities; the loss of his lectures, for example, must have a serious financial bearing on the whole position of affairs. In addition to the action of the Government and of the committee, a public subscription fund has been opened by the Lord Mayor of London; two London newspapers (*The Daily Telegraph* and *The Daily Chronicle*) have adopted a similar course, and collections are also being made under various official or unofficial auspices in various centres in the provinces and colonies. It may be added that, at the moment of writing, the Mansion House Fund has not been augmented with the rapidity characteristic of occasions of deep national feeling; it may well be that the public waits to learn what measures will be taken by the Government; but these cannot in the nature of the case be taken immediately, and there is ample scope for the proper use of whatever moneys may in the meantime be subscribed.

© 1913 Nature Publishing Group